UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/677,273	10/03/2003	Michel Linares	Q77862	8742

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ART UNIT	PAPER NUMBER
2132	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

	Application No.	Applicant(s)
Office Action Summary	10/677,273	LINARES, MICHEL
	Examiner	Art Unit	
	Martin Jeriko P. San Juan	2132	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE _3_ MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on _17 May 2007_.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) _1-9_ is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) _____ is/are allowed.

6) ☒ Claim(s) _1-9_ is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☒ The drawing(s) filed on _03 October 2003_ is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☒ All   b) ☐ Some *   c) ☐ None of:

    1. ☒ Certified copies of the priority documents have been received.

    2. ☐ Certified copies of the priority documents have been received in Application No. _____.

    3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _1/30/2004_.

4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

This is a response to Applicant's Remarks filed on May 17, 2007.

Claims 1-8 were originally pending.

Claims 1 and 4 are currently amended. New claim 9 has been added by the Applicant.

Claims 1-9 are now pending in the application.

Response to Arguments

1.   Applicant's arguments filed on May 17, 2007 have been fully considered but they are not persuasive.

   a.   Applicant alleges that Hakkarainen is non-analogous art. Applicant states, "In the present case, Hakkarainen relates to providing a controlled access with privacy in a message broadcast system to various users. That is Hakkarainen is unrelated to a secure method of exchanging information messages which, in the course ..."

Examiner respectfully disagrees. Providing a controlled access (or use) with privacy of a message (or information) definitely involves a level of security in the method of exchanging this message broadcast information. Though it may have not been in the same field of application, it is in the same field of Applicant's endeavor, ie. digital communications. Applicant's invention relates to a secure method of sending messages from a sending entity to a receiving entity

[Specification, Pg 2, Ln 4-6]. Hakkarainen sends information/message securely from a sending entity [Service Provider] to a receiving entity [Customers]. Examiner concludes that Hakkarainen et al. is an analogous art.

b.   Applicant's arguments with respect to claim 1 have been considered but are moot in view of the new ground(s) of rejection. New grounds of rejection are based on the combined cited prior art of Swensen et al. [US PN 5420883] and Hakkarainen et al. [US Pub No. 2003/047532 A1].

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

1.   Claim 9 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

a.   Regarding claim 9, the matter about the receiving platform verifying that a message currently received corresponds to a last message sent by the sending platform is not supported in the Applicant's Specification. The closest support

found by the Examiner from the Specification is on Pg 13, Ln 16-25. Even then,
there is no explanation or even a suggestion that the receiving platform verifies
that a message currently received corresponds to a last message sent by the
sending platform. It was originally understood by the Examiner, based from the
Specification and the explained functionality of the invention, that it is already in
the system invented by the Applicant that the message currently received by the
receiving platform would correspond to a last message sent by the sending
platform, such that, no verification by the receiving platform is needed.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all
obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set
> forth in section 102 of this title, if the differences between the subject matter sought to be patented and
> the prior art are such that the subject matter as a whole would have been obvious at the time the
> invention was made to a person having ordinary skill in the art to which said subject matter pertains.
> Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459
(1966), that are applied for establishing a background for determining obviousness
under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating
    obviousness or nonobviousness.

1. Claim 1-9 are rejected under 35 U.S.C 103(a) as being unpatentable over Swensen

et al. [US PN 5420883], hereinafter "Swensen" and in view of Hakkarainen et al. [US

Pub. No. 2003/0147532 A1], hereinafter "Hakkarainen".

With regard to claim 1, Swensen discloses a secure method of exchanging information

messages sent successively from a sending platform to a receiving platform [US PN

5420883, Fig 1], the method comprising:

a) an initialization sequence in which an initialization message containing information

relating to a "timeslot or timewindow" for sending a first information message M_1 is

exchanged between sending platform and receiving platform so that sending platform

and receiving platform know the timeslot for sending first information message M_1, [An

initialization sequence is inherent in a time triggered communication system, such as

that being taught by Swensen, using TDMA communication. In TDMA communication,

messages contain a "timeslot" identification within a TDMA cycle so that the receiving

platform can determine whether the correct message corresponding to a certain timeslot

within a cycle/period has been received.] and b) an information message transmission

sequence in which: said information messages are sent successively by sending

platform at given time intervals ΔT_E [US PN 5420883, Col 5, Ln 47 – TDMA

communication] with a sending time tolerance δ [US PN 5420883, Fig 20 -- Time

tolerances are inherent in TDMA communication transmitter/receiver modules utilizing

internal clocks.] based on a clock specific to sending platform, so that first message M1

is sent at date t_1 on said clock and the nth message M_n is sent at the date $t_n = t_1 + (n-1) *$

$\Delta T_E + \delta$ [This equation is inherent in all time triggered communication. It states that the time for a given time period, t_n, corresponding to a certain message is equal to the start time plus the total elapsed time including the time tolerance as part of the elapsed time.] and said messages received by receiving platform are processed as a function of their reception date t_r based on a clock specific to receiving platform [US PN 5420883, Fig 20, Itm 334 -- Internal clocks of transmitter and receiver modules.] so that said messages received in an observation time window F_n containing t_n with a width ΔT_F [Messages in a TDMA communication are received in a certain "timeslot/timewindow" within a TDMA cycle/period.] said clock of the receiving platform being synchronized to said date t_1 on receiving said first message M_1 [In TDMA communication, clocks are synchronized based on whether the correct message corresponding to a certain timeslot within a TDMA cycle/period has been received.].

Swensen does not teach sending an initialization message containing information relating to a date t_1 [information relating to a certain TDMA period/cycle] for sending a first information message M_1. Swensen also does not teach each message M_n being coded by means of a dynamic code C_n specific to said date t_n of sending said message. Swensen also does not teach using a decoding sequence, DC_n, adapted to decode the dynamic code, C_n.

However, Hakkarainen teaches sending an initialization message containing information relating to a date t_1 for sending a first information message M_1 [US Pub No.

2003/0147532 A1, Par 0017, -- Initial decryption information needed to begin decrypting a message/service, M_1, at a certain time, t_1.]. Hakkarainen also teaches each message M_n being coded by means of a <u>dynamic code C_n specific to said date t_n of sending said</u> <u>message</u> [US Pub No. 2003/0147532 A1, Pg 3, Par 0029 – Decryption information associated with the first microperiod and future decryption information (associated with future microperiods) being provided by the Service Provider reads on dynamic code C_n specific to said date/time t_n of sending message. Dynamic code C_n used on each message, M_n, is defined by Applicant on page 4, Ln 14-20 of the Specification.] Hakkarainen also teaches <u>using a decoding sequence, DC_n, adapted to decode the</u> <u>dynamic code, C_n, [US 2003/0147532 A1, Pg 3, Par 0029 – Service Provider encrypts</u> <u>the decryption information associated with the first microperiod using e_0. This reads on</u> <u>the decoding sequence DC_n.] said</u> clock of the receiving platform being synchronized to said date t_1 on receiving said first message M_1 [US 2003/0147532 A1, Pg 3, Par 29 – The Service Provider also provides the recipients with any necessary synchronization information].

It would have been obvious to one of ordinary skill in the art at the time of invention to extend Swensen's spread spectrum (TDMA) communication to include dynamic encryption/decryption as taught by Hakkarainen et al. so that certain messages M_n can only be accessed at certain TDMA cycles/periods, t_n. The suggestion/motivation for extending to include dynamic encryption/decryption would be to add a layer of security

for information subjected to conditional (timing) access [US 2003/0147532 A1, Pg 1, Par 002].

Swensen et al. and Hakkarainen et al. are analogous art because they are both in the same field of securely exchanging information/message, ie. digital communications. Therefore, it would have been obvious to combine the inventions of Swensen et al. and Hakkarainen et al.

With regard to claim 2, the combined inventions of Swensen and Hakkarainen teach the secure method claimed in claim 1 of exchanging information messages, wherein during said initialization sequence a) a coded initialization message M0 is sent from said sending platform to said receiving platform and a coded initialization message M'0 is sent from said receiving platform to said sending platform, said initialization messages M0, M'0 containing the information relating to said date t1 for sending said first information message M1, and said initialization messages M0, M'0 being decoded by said sending platform and said receiving platform which then know said date t1 for sending said first information message M1 [US PN 5420883, Col 13, Ln 26-47 – Swensen discloses the means for Control stations and Wayside Stations to communicate and achieve synchronized communication.] [US Pub No 2003/0147532 A1, Pg 2, Par 0017 – Hakkarainen also teaches the transmittal of initial decryption information, ie. "seed", accompanied by synchronization information to enable the client to determine when the decryption information may be used.].

With regard to claim 3, the combined inventions of Swensen and Hakkarainen teach the secure method claimed in claim 1 of exchanging information messages, wherein, if said first message M1 is not received within an allotted time after reception of said initialization message, said clock of said sending platform is automatically synchronized to said date t1 at the moment corresponding to the end of the allotted time [In TDMA communication, it is inherent that clocks be synchronized initially so that messages in a TDMA cycle/period do not collide at the next subsequent cycles/periods.].

With regard to claim 4, the combined inventions of Swenson and Hakkarainen teach the secure method of exchanging information messages, wherein said observation window Fn corresponds to a time window $[t_1 + (n-1) * \Delta T_E - \Delta T_F * \varepsilon, t_1 + (n-1) * \Delta T_E + \Delta T_F * (1-\varepsilon)]$; where the width of the observation window ΔT_F satisfies the equation $\Delta T_F \leq \Delta T_E$ and ε is from 0 to 1. [This equation is applicable in TDMA communication since it gives the time coordinate of a certain timeslot in a given time period.]

With regard to claim 5, the combined inventions of Swenson and Hakkarainen teach a secure method of exchanging information messages, wherein a clock synchronization signal is sent regularly by sending platform between sending messages M_n. [US PN 5420883, Col 19, Ln 64-68]

With regard to claim 6, the combined information of Swensen and Hakkarainen teach a

secure method of exchanging information messages, where information messages

decoded by receiving platform are transmitted to an information processing module [US

PN 5420883, Fig 11 – Messages regarding train speed, update, and control are

transmitted to various information processing modules.].

With regard to claim 7, the combined inventions of Swensen and Hakkarainen discloses

a secure method of exchanging information messages, where messages received by

receiving platform during an observation window F_n are stored sequentially in a memory

able to store only one message at a time and only the message stored in memory at the

end of observation window F_n is transmitted to said information processing module. [US

PN 5420883, Fig 22-26 – demultilplexing data and processing.]

With regard to claim 8, the combined inventions of Swensen and Hakkarainen discloses

a secure method of exchanging information messages, where sending platform is part

of a centralized control station of a rail traffic supervision and control system, receiving

platform is part of a fixed installation disposed alongside a rail track, and information

processing module is a control unit on board a train circulating on a track section

associated with fixed installation. [US PN 5420883, Fig 1]

Regarding claim 9, the combined inventions of Hakkarainen and Fuhrmann teach the

secure method of claim 1, wherein said sending platform successively transmits a

plurality of the information messages to the receiving platform and wherein based on the date t_n, the receiving platform verifies that a message currently received corresponds to a last massage sent by the sending platform. [US 5420883, Col 8, Ln 13-15]
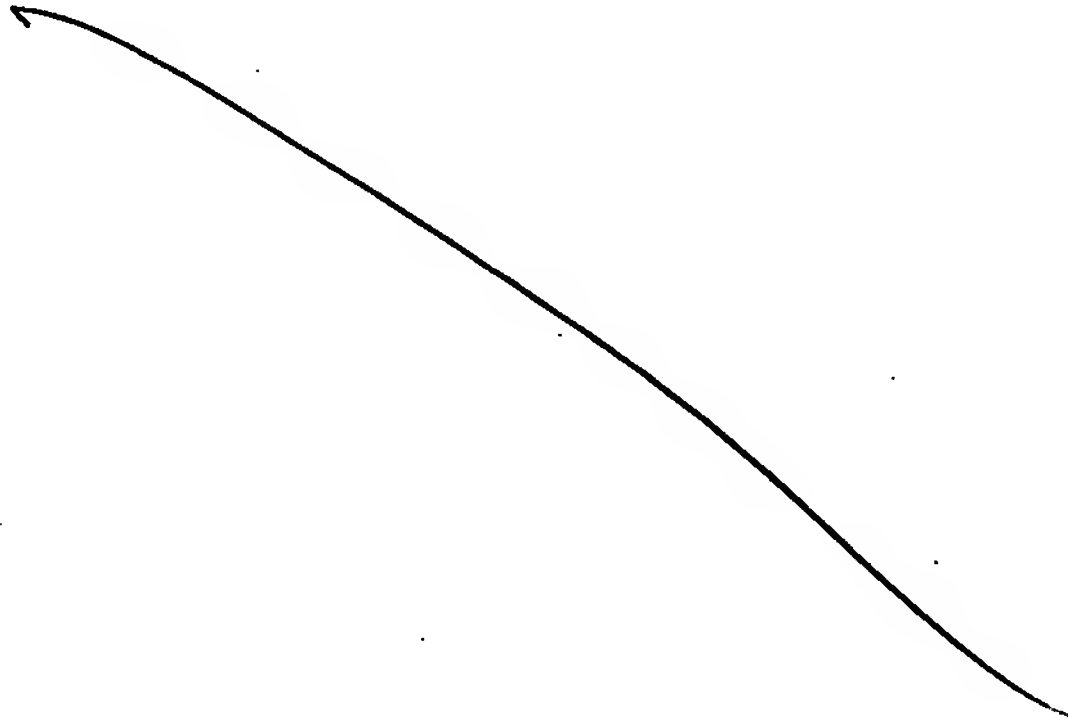
Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure:

Lonn, H. "Initial Synchronization of TDMA Communication in Distributed Real-Time Systems." June 1999, Distributed Computing Systems, 1999. Proceedings. 19th IEEE International Conference.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin Jeriko P. San Juan whose telephone number is 571-272-7875. The examiner can normally be reached on M-F 8:30a - 6:00p EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gilberto Barron can be reached on 571-272-3799. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.
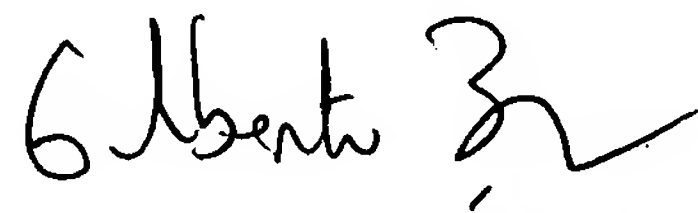
Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published

applications may be obtained from either Private PAIR or Public PAIR. Status

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Customer Service Representative or access to the automated information system, call

800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/MJSJ/

Martin Jeriko San Juan

Examiner. Art Unit 2132

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